



Original communication

Exhumation – Nuisance to the dead, justified?

Farhat Hussain Mirza MD, Head of Department, Forensic Medicine^a, Syeda Ezz-e-Rukhshan Adil Medical Student^a, Akhtar Amin Memon Medical Student^{a,*}, Hamid Ali Paryar MD, Police Surgeon^b

^a Dow Medical College, Karachi, Pakistan

^b Civil Hospital, Baba-e-Urdu Road, Karachi, Pakistan

ARTICLE INFO

Article history:

Received 3 September 2011

Received in revised form

9 January 2012

Accepted 14 February 2012

Available online 13 March 2012

Keywords:

Autopsy

Exhumation

Karachi

ABSTRACT

Objective: Exhumation stands as a very significant feature of forensic investigations. The legal excavation of dead bodies for ascertainment of the cause of death has always aided the law enforcement agencies to comprehend the anonymity of any suspicious case and further convict the criminal in cases of homicides. This study analyses the different aspects of the exhumations which were carried out and were autopsied in Karachi during the study period.

Method: This was a cross-sectional study, and included all the exhumations carried out in Karachi during a period of 7 years and 7 months from 1 January 2004 to 31 July 2011.

Results: A total of 101 exhumations were carried out during the study period. Out of 101 cases, 63 were males (62.4%) and 38 females (37.6%) giving a male to female ratio of about 3:2. Causes of death were ascertained in 75 cases, thus the success rate was 74.3%. Head injury by hitting with hard blunt object was the most frequent cause of deaths (17.8%), followed by asphyxia due to strangulation (15.8%).

Discussion: Exhumations must be ordered by the Judiciary in suspicious cases as it aids in determining the actual causes of death and leads to convictions. It also brings a great deal of satisfaction for the relatives of the deceased and halts any doubts in their minds. As shown by our study, much attention is given to the cases in urban areas by the relatives who are determined to find the cause of death even after burial procedures.

© 2012 Elsevier Ltd and Faculty of Forensic and Legal Medicine. All rights reserved.

1. Introduction

Exhumation or disinterment is the procedure of excavating the remains of previously cremated or buried individuals for medico-legal investigations, relocation or other purposes.

Exhumation is an expensive, prolonged process and requires official permission from the legal authorities. Hence, it is practiced only when a certain need arises.

Exhumation requires strict and vigilant procedures into enactment. First, the acquisition of legal permission for the procedure is required in the form of the authorisation from the District and Session Judge/Additional District and Session Judge/Judicial Magistrate under the Section 176 of the Criminal Procedure Code (CrPC).

An important incentive of exhumation is the request by the relative of the deceased, to ascertain the cause of the death. Cases

often include those where no autopsy was performed before burial, and further investigations later lead to exhumation. Exhumation may also be performed solely for the identification of missing or abducted individuals.¹ Much of its significance lies in identification of individuals buried en masse. Exhumation has proven to be extremely worthwhile in scenarios like those following war in Serbia, Croatia and Yugoslavia where war victims were tortured, maimed and buried in mass burial grounds. Thus, exhumation proved to be gratifying for the relatives, leading to the identification of the missing individuals. Geneva Convention of 1949 reserves the right of the relatives to “know the fate of their deceased relatives.”²

Recently, exhumation was performed on an extensive scale for the identification of missing individuals in the Iraq war.³ A study from Larkana and Sukkur Districts of Pakistan reported 21 bodies exhumed and autopsied within a period of 3.5 years.⁴ Qazi et al. reported 35 bodies exhumed and autopsied under Standing Medical Board of Hyderabad, Pakistan during 2004–05.⁵

The present study analysed the various aspects of exhumation carried out over the past 7.5 years within Karachi. With an extended period of study and larger number of exhumations performed, the various aspects of exhumation procedure and the importance of second autopsies in the local scenario is highlighted.

* Corresponding author. 1704/3, Federal B Area, Karachi, Pakistan. Tel.: +92 322 2755172.

E-mail addresses: captdrmirza@hotmail.com (F.H. Mirza), s.ezze.rukhshan@gmail.com (S.-e. Adil), akhtar.amin@live.com (A.A. Memon), enr.amjadali@hotmail.com (H. Ali Paryar).

2. Methods

2.1. Study setting

This was a cross-sectional study, extending over a period of 7 years and 7 months from 1 January 2004 to 31 July 2011, that included all exhumations that were carried out in Karachi by the order of Judiciary under section 176 CrPC.

2.2. Inclusion criteria

Cases which were ordered by Judiciary under section 176 CrPC.

2.3. Exclusion criteria

Cases outside Karachi were excluded from the study.

2.4. Data collection

Documentations were completed, that is, all available records of the case along with written authority from the judge or magistrate under Section 176 CrPC were collected. All the bodies were exhumed under the supervision of a magistrate in the presence of the first author. A detailed autopsy was then conducted in each case to ascertain the cause and manner of death under the supervision of the first author of this study. Samples were taken including soil above grave, soil below the body, control sample, portion of coffin, viscera or liquefied matter from their anatomical sites, hair, nails and bones. In cases of suspected poisoning, hair and portions of long bones preferably 10–15 cm of shaft of femur are collected. For DNA, samples like teeth, nails and clavicle are collected.

2.5. Analysis of data

Statistical data were analysed using Statistical Package for the Social Sciences (SPSS) version 16. The frequency and percentages were calculated for all categorical variables including gender, age group and causes of deaths.

The mean \pm SD was calculated for age.

3. Results

A total of 104 exhumations were ordered by the judiciary during the study period of 7 years and 7 months. However, three exhumations were later cancelled by the judiciary due to settlement between the parties involved. 101 exhumations were carried out.

The time interval between the burial of the individual and exhumation range from 1 day to 5.5 years, as shown in Table 1. The most frequent time interval was from second month to sixth month of burying ($n = 48$, 47.5%), followed by exhumation within the first month of burying ($n = 40$, 39.6%).

Out of 101 bodies exhumed, 63 (62.4%) were found to be males while 38 were females (37.6%).

Table 1
Frequency of time interval between death and exhumation.

Time interval between death and exhumation	Frequency	Percentage
Within 1st month	40	39.6%
2nd–6th month	48	47.5%
7th month–12th month	06	5.9%
From 1st–2nd year	03	3.0%
From 3rd–4th year	02	2.0%
From 4th–5th year	01	1.0%
More than 5 years	01	1.0%
Total	101	100%

Of 101 bodies, cause of death of 26 (25.7%) bodies was undetermined, while cause was ascertained in 75 cases. Thus, the success rate of 74.3% was achieved. Head injury by hitting with hard blunt object was found to be the most common cause of death ($n = 18$, 17.8%), followed by asphyxia due to strangulation ($n = 16$, 15.8%) as shown in Table 2.

Age-wise distributions showed that majority of the bodies belong to age group 16–29 years (43.6%) as shown in Table 3.

Out of the 101 bodies exhumed and autopsied, 13 were previously autopsied at the time of burial and thus were second autopsy cases (12.9%), while remaining 88 bodies were not autopsied at the time of burial and were first autopsy cases (87.1%).

Out of the 88 first autopsy cases, causes in 23 (26.1%) cases were unable to be determined, while the causes were established in the remaining 65 cases (73.9%).

Out of the 13 s autopsy cases, the causes of deaths were ascertained in 10 cases (76.9%) while causes in three cases (23.1%) remained undetermined.

4. Discussion

Our study reported exhumation of 101 bodies in 7 years and 7 months from Karachi with a frequency of 13.4 exhumations per year. A study from Larkana and Sukkur districts reported a frequency of only six exhumations performed per year.⁴ Thus, a comparison showed more number of exhumations in Karachi, which can be due to the fact that Karachi is a cosmopolitan city with predominantly urban areas. The levels of education and social awareness in this district are better than any other area of the Sindh province. Hence, more attention is given to the cases in urban areas by the relatives who are determined to find the cause of death even after burial procedures.

The international studies have also audited the different aspects of exhumed cases. A study from Ankara, Turkey reported a total of 52 cases of exhumation between 1996 and 2003.⁶

Several reports have discussed the exhumations of mass graves conducted for the identification of the remains of individuals after homicides. A total of 724 skeletons were exhumed in Lithuania during 1994, 1995 and 2003 for the identification of individuals executed in 1944–47. Out of 724 skeletons, only 45 were identified.⁷

Exhumations from a mass grave from the time of World War II reported 190 Jewish individuals who died of firearms or mechanical injury.⁸

A study conducted under the Institute of Legal Medicine at the Hannover Medical School, Germany reported 87 exhumations

Table 2
Frequency of causes of death found in bodies exhumed.

Cause	Frequency	Percentage
Asphyxia due to hanging	04	4.0%
Asphyxia due to strangulation (constriction of neck)	16	15.8%
Traumatic asphyxia	01	1.0%
Burns	01	1.0%
Drowning	03	3.0%
Poisoning	06	5.9%
Sharp weapon (cut throats and stab wounds)	05	5.0%
Electrocution	01	1.0%
Firearm	06	5.9%
Head injury with hard blunt object	18	17.8%
Chest injury with hard blunt object	01	1.0%
Natural cause	09	8.9%
Road traffic accident	01	1.0%
Post partum hemorrhage	01	1.0%
Multiple fracture of Ribs	01	1.0%
Liposuction procedure	01	1.0%
Undetermined causes	26	26.5%
Total	101	100%

Table 3

Age wise distribution of the bodies exhumed.

Age group	Frequency	Percentage
15 and below	10	9.9%
16–29 years	44	43.6%
30–49 years	30	29.7%
50–59 years	07	6.9%
60 and above	10	9.9%
Total	101	100%

performed during a period of 20 years. It also reported that much information may be gained through exhumation even after significant time has passed since burial.⁹

Our study reported that causes were determined in majority of the cases ($n = 75$) with a significant success rate of 74.3%. This is significantly higher than the 42.85% success rate reported in Larkana and Sukkur by Humayun et al.⁴

Furthermore, success rate was achieved in 73.9% of the first autopsy cases and 76.9% of the second autopsy cases. This is considerably higher than the success rate of 66% of the first examination cases and only 24% of the second examination cases autopsied under the Standing Medical Board of Hyderabad.⁵ In some of our cases where first autopsy was conducted but was declared as negative autopsy due to the lack of experience of medico-legal officers, however, were later determined positive according to the findings on the bones after exhumation.

The system followed in Pakistan is continental in which the inquest is of two types, that is, Police and Judicial. Exhumation is carried out on order of Judiciary, through a special board constituted by the Provincial Health Department, comprising of a forensic expert (author no. 1), convener (police surgeons, Karachi, author No. 3) and two medico-legal officers. Exhumations are done as a tool to facilitate justice, but in many cases the relatives bury the body without autopsy, later on the parents of deceased ask for exhumations, showing suspicion of foul play on in-laws. It is especially seen in married women. Furthermore, in some cases after killing the victim, the dead body is disposed by burying. In some cases, the bodies were cemented in the house after digging a pit and then remaking the floor, or buried in the garden or some other deserted place.

In Karachi, some communities such as 'Shias' are usually against exhumation due to their religious beliefs. However, once they suspect foul play by listening to comments of those who prepared the body for funeral, they later on ask for exhumations. Moreover, some ethnic groups such as 'Pathans' take away bodies after giving in writing for non-conduction of autopsy, but later on when the case goes to court, either they or the opposite parties demand for exhumation.

This high rate of positive autopsies is mainly due to the fact that majority of the exhumations were carried out within 1 month ($n = 40$, 39.6%) or during second to sixth month ($n = 48$, 47.5%) after burial. As discussed by Awan R, success rate depends heavily on shortening the delay between burial and disinterment¹⁰; unnecessary delay avoided in such cases prevented advanced decay of these bodies and produced a high success rate. Demirel et al. also reported that the probability of ascertainment of cause highly depends on the time interval between the burial and exhumation.⁶

Males were found to comprise the major fraction of the cases (62.4%) with the male to female ratio to be about 3:2. Other similar studies in Pakistan have also reported male dominance. Humayun et al. reported male exhumation to be 4.25 times more dominant than females in Larkana and Sukkur,⁴ while Qazi et al. reported a similar 2.5:1 male female ratio of exhumed bodies in interior Sindh.⁵ Males in our society possess a more extrovert and aggressive

nature and socialise at length with the community. Thus, they are more liable to get involved in skirmishes that can be the cause of enmity leading to their deaths by homicide, culminating in exhumation when suspicion arises from the cause of death.

Majority of the exhumed bodies fall into the age group of 16–29 years (43.6%), followed by age group 30–49 years (29.7%). This is in concurrence with studies reported from other areas of Pakistan.^{4,5} This reflects a grave reality of our society where youth suffers at the hands of violent and aggressive activity and is affected most heinously by the deteriorating law and order situation of the country. Consequently, majority of the causes of the death established were of homicidal nature with 17.8% deaths due to hard and blunt trauma on head, followed by asphyxia due to strangulation ($n = 16$, 15.8%). A similar trend was reported in studies where exhumations were carried out in the same province.^{4,5} This reflects again the extent of sadism and bloodshed rooting in our society.

Significantly, two of the exhumed cases were of pregnant females, both aged 25, as shown by the presence of foetal bones in the area of the uterus. This is a sad state of affairs and possibly one of the many cases of social disparity and deteriorating educational status.

Exhumations have been practiced since ancient times. Religion of Islam has its own reservations regarding exhumation and autopsies of dead bodies. The hadith by the Holy Prophet P.B.U.H forbade breaking or damaging the corpse or breaking the bones of the dead. They could not be allowed until there is a certain necessity directly related to any one of the five purposes of the law called 'Maqasid-al-Shariat'. These purposes include protection of religion, life and health, progeny, intellect and wealth.¹¹

Hence, exhumations will always remain one of the important means of forensic investigations. The Judiciary system must order the concerned authorities to exhume dead bodies in cases where there is doubt regarding the cause of death. Such pure evaluation will result in indication and conviction of the criminals and will develop a sense of trust and respect of the general population over the Judiciary and law enforcement agencies. Moreover, exhumations help a lot in training of students undergoing post-graduation in this specialty.

Conflict of interest

We hereby declare that there is no conflict of interest of the authors.

Funding

None declared.

Ethical approval

None declared.

References

- Vanezis P, Sims BG, Grant JH. Medical and scientific investigations of an exhumation in unhallowed ground. *Med Sci Law* 1978;**18**(3):209–21.
- Williams ED, Crews JD. From Dust to Dust: Ethical and Practical Issues involved in the Location, exhumation, and identification of bodies from mass graves. *Croat Med J* 2003;**44**(3):251–8.
- Stover E, Haglund WD, Samuels M. Exhumation of mass graves in Iraq. *JAMA* 2003;**290**(5):663–6.
- Humayun M, Khichi ZH, Chand H, Khan O, Asadullah. Exhumation- A key to provide justice to victims of homicide: situation in Larkana and Sukkur Divisions. *J Ayub Med Coll Abbottabad* 2010;**22**(1):168–70.
- Qazi A, Afridi HK, Aziz K. Exhumation; A tool to establish cause of death. *Ann King Edward Med Uni* 2006;**12**(4):490–2.
- Demirel B, Akar T, Odabasi AB, Ozdemir C, Bilge Y, Isik AF. Cases of exhumation in Ankara between 1996 and 2003. *Turkiye Klinikleri J Foren Med* 2006;**3**:53–7.
- Jankauskas R, Barkus A, Urbanavicius V, Garmus A. Forensic archaeology in Lithuania: the Tuskulenai mass grave. *Acta Med Lituanica* 2005;**12**(1):70–4.

8. Chagowski W, Madro R. The exhumation of a World war II Jewish grave. *Ann Univ Mariae Curie Sklodowska Med* 1999;**54**:9–12.
9. Breitmeier D, Graefe-Kirci U, Albrecht K, Weber M, Troger HD, Kleeman WJ. Evaluation of the correlation between time corpses spent in in-ground graves and findings at exhumation. *Forensic Sci Int* 2005;**154**(2):218–23.
10. Awan NR. Autopsy and exhumation. In: Awan AR, editor. *Principle and practice of forensic medicine*. Lahore: Sublime Arts; 2002. p. 118–30.
11. Kasule OH. *An Islamic Ethico-legal Perspective on autopsy*. Islamic Medical education Resources-05 [Internet]. Available from: http://omarkasule-05.tripod.com/id297.html#_edn2; 2008.